

JAPAN

EDICT OF GOVERNMENT

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JIS T 9241-5 (2008) (English): Hoists for the transfer of persons with disabilities -- Part 5: Sling sheets

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*The citizens of a nation must
honor the laws of the land.*

Fukuzawa Yukichi

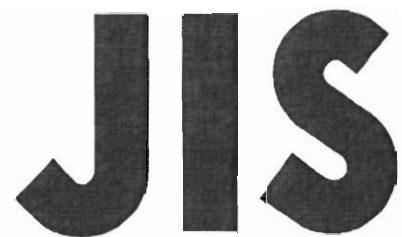
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JAPANESE
INDUSTRIAL
STANDARD

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JIS T 9241-5 : 2008

**Hoists for the transfer of persons with
disabilities — Part 5: Sling sheets**

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Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Economy, Trade and Industry, through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law.

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Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

JIT T 9241 consists of the following 5 parts under the general title “*Hoists for the transfer of persons with disabilities*”:

Part 1 : Classification and general requirement

Part 2 : Mobile hoist

Part 3 : Stationary hoists

Part 4 : Rail guide hoists

Part 5 : Sling Sheets

Hoists for the transfer of persons with disabilities—

Part 5: Sling sheets

Introduction

This Japanese Industrial Standard has been prepared based on the first edition of ISO 10535 published in 1998 dividing into parts by classification of products and with some modifications of the technical contents, reflecting domestic situation.

The portions with continuous sidelines or dotted underlines are the matters not stated in the corresponding International Standard. A list of the modifications with the explanations is shown in Annex JA.

1 Scope

This Standard specifies sling sheets for the hoists used for the persons unable to easily transfer or move on their own.

NOTE : The International Standard corresponding to this Standard is as follows.

ISO 10535:1998 *Hoists for the transfer of disabled persons—Requirements and test methods* (MOD)

In addition, symbols, which denote the degree of correspondence in the contents between the relevant International Standard and JIS, are IDT (identical), MOD (modified), and NEQ (not equivalent) according to ISO/IEC Guide 21.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS L 0844	<i>Test methods for colour fastness to washing and laundering</i>
JIS L 1091	<i>Testing methods for flammability of textiles</i>
JIS T 9241-1	<i>Hoists for the transfer of persons with disabilities—Part 1: Classification and general requirement</i>
JIS Z 8703	<i>Standard atmospheric conditions for testing</i>

3 Terms and definitions

For the purposes of this Standard, the terms and definitions in JIS T 9241-1 and the following apply.

3.1 sling

the body-support unit manufactured from such soft cloth that fits the body and to be attached to the lifting device of the hoist (see figure 1 and figure 2)

3.2 balance weight

supplementary cloth added to the tested cloth to meet mass ratio between processing liquid and object to be processed

3.3 body-support unit

the part of the hoist that supports the person being lifted, moved or transferred (e.g. sling, seat, stretcher, etc.) along with its associated attachment construction

3.4 lifted person

the person who is transferred by the hoist

3.5 maximum load

the load excluding the mass of body-support unit from the maximum load specified in JIS T 9241-1

3.6 attendant

the person who operates the hoist to transfer and move the lifted person

3.7 spreader bar

a rigid construction with more than one connection point, onto which the body support unit is attached

3.8 strap

a part of sling connecting to spreader bar (see figure 3)

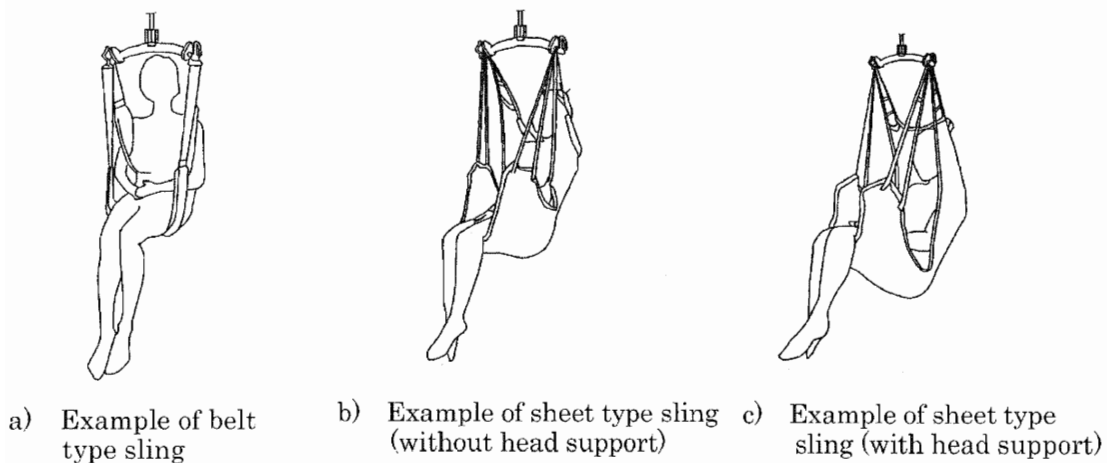
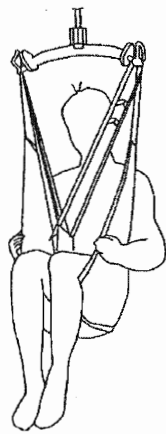


Figure 1 Examples of sling



d) Example of feet separation type sling (without head support)



e) Example of feet separation type sling (with head support)

Figure 1 (concluded)

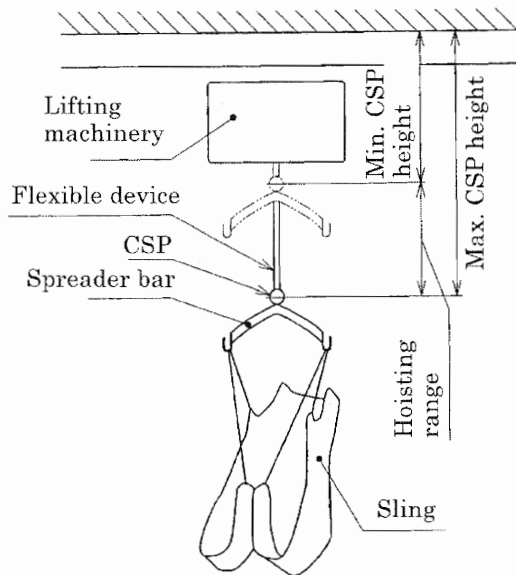


Figure 2 Application of sling for ceiling hoists (name of each parts)

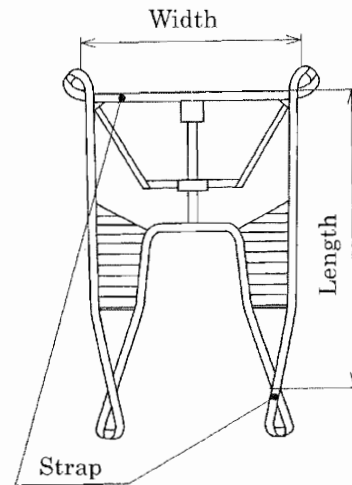


Figure 3 Strap

4 Classification and division

4.1 Classification

The classification shall be as specified in 4.1.2 of JIS T 9241-1.

4.2 Division (symbol for division) according to maximum load The division (symbol for division) according to the maximum load shall be as specified in 4.2 of JIS T 9241-1.

5 Design, performance and appearance

5.1 Design

5.1.1 Risk analysis

The risk analysis shall be as specified in 5.2.1 of JIS T 9241-1.

5.1.2 Ergonomics factors

The ergonomics factors shall be as specified in 5.2.2 of JIS T 9241-1.

5.2 Performance

5.2.1 Performance of sling

The sling shall conform to table 1 when tested according to 6.2 and 6.3.

Table 1 Performance

Test	Test items	Requirements	Method
Washing and drying	Appearance	No loosing of fabric and string and no opening of stitch. No damage and wear.	6.2
	Colour fastness	Grade 4 or superior in discoloration and Grade 3 or superior in contamination.	6.2
	Dimensional stability	Not shrink by not less than 5% in length and width of sling (see figure 3).	6.2
Static strength	Appearance	No loosing of fabric and string and no opening of stitch. No damage and wear.	6.3

5.2.2 Flame retardancy of sling

When the manufacturer declares use of flame-retardant material, the material shall not show any smoldering or firing phenomena during the test specified in 6.4.

5.3 Appearance

The sling shall not show any loosing of fabric and string, and opening of stitch. Also, there shall be no damage or wear on it.

6 Test methods

6.1 General

6.1.1 Test condition

The test condition shall be as follows.

- a) The sling shall be tested as it is delivered to the customer. All tests shall be carried out in the order stated. The test report referred to in 6.1.3 shall be placed in the manufacturer's technical file.
- b) The tests specified in 6.2 and 6.3 shall be carried out under normal indoors conditions ¹⁾.

Note ¹⁾ In JIS Z 8703, the temperature is specified as $(20 \pm 10) ^\circ\text{C}$ and relative humidity as $(65 \pm 30) \%$.

6.1.2 Test equipment

The test equipment shall be as follows.

- a) **Load tester** The maximum applicable load shall be 150 % of the maximum load that is determined by the division according to the maximum load, the tolerance of which shall be $\pm 2 \%$.
- b) **Washing machine** Front-loading horizontally rotating drum type or top-loading agitator type shall be used.

6.1.3 Test report

The test report shall include at least the following information.

- a) A description of the product, including type and designation
- b) Name and address of the manufacturer
- c) A photograph of the sling presented during the test
- d) Name and address of the testing laboratory
- e) Result of tests
- f) Any deviations from the standardized test procedure
- g) Date of test

6.1.4 Pre-treatment of test sample

The test sample shall be pre-treated as follows.

- a) Usually, use the test sample in its original form as delivered from the manufacturers.
- b) Put the sample in a washing net. Adjust the total load to be 2 kg by adding the balance weight ²⁾ as specified below.

Note ²⁾ The balance weight is of a flat woven textile made of 100-percent-cotton, which is de-starched, refined and bleached. Using the cloth with $(155 \pm 5) \text{ g/m}^2$ of mass per unit area, cut out the raw close into the size of $(92 \pm 5) \text{ cm}$ square and prevent loosing at external edge.

- c) After charging the samples adjusted in b) in the washing machine, add 1.6 g/L of detergent specified by the manufacturer, set the water level to 13 cm, and then automatically operate the washing machine under the conditions as shown in table 2.

The rotation power shall be set at "weak".

- d) After stopping the operation, take out the samples from the washing net, and spread out them on a drying shelf to dry naturally.

Table 2 Washing condition for sample

Washing stage	Water temperature °C	Washing time min	Dehydration time min
Washing	40 ± 3	3	0
1 st Rinsing	20 ± 5	3	0
2 nd Rinsing	20 ± 5	3	1
3 rd Rinsing	20 ± 5	2	6

6.2 Washing and drying test

For each sample which has been washed and dried under the test conditions specified in a) to e) of 6.1.4, visually inspect these samples whether they show no loosening of fabric and string, opening of stitch and deformation, comparing with the samples before tests. Measure the change in dimension. Repeat this procedure 10 times. Then, check the colour fastness in accordance with Method C of JIS L 0844.

6.3 Static loading test

The static loading test shall be as follows.

- Hang the samples that have been subjected to washing and drying test as specified in 6.2, with applying 150 % of the maximum load for 20 min, and then release the load.
- Visually inspect whether the slings show no loosening of fabric and string or opening of stitch.
- Visually inspect whether the slings show no damage or wear.

6.4 Flame retardancy test

The flame retardancy test shall be according to JIS L 1091.

7 Inspection

Inspection of the sling is divided into type inspection³⁾ and delivery inspection⁴⁾. The respective inspection items are as follows.

The method of sampling inspection for the both inspections shall be upon the agreement between the purchaser and the manufacturer.

Notes ³⁾ Type inspection is intended to judge whether products conform to all characteristics specified in the design.

⁴⁾ Delivery inspection is intended to judge whether the products conform to the required characteristics in the case of delivery of the products that have been designed and manufactured in the same way as the products having already passed the type inspection.

a) Items for type inspection

- Performance
- Marking and instruction for use

b) **Items for delivery inspection**

- 1) Appearance

8 Marking and instruction for use

8.1 Marking

All slings shall be marked indelibly with the following information on a prominent place.

- a) Name and address of the manufacturer
b) Number of this Standard, classification and symbol for division according to the maximum load.

Example 1 JIS T 9241-5 : Belt type sling—WM

- c) The following warning
“Do not use the sling which is unsuitable for a lifted person and hoist.”
d) An appropriate washing method and material based on Household Goods Quality Labeling Law.
e) Year and month of manufacture or their abbreviation;
f) The maximum load

Example 2 Maximum load : 85 kg (including lifted person and other accompanied tools)

- g) Marking for flame retardancy (in the case of use of the relevant material)

8.2 Instruction for use

The instruction for use shall contain the following information.

- a) Name, address, telephone number and facsimile number of the manufacturer, supplier or agent if different
b) Mounting and dismounting method of the sling
c) Intended use of the sling (see Annex A)
d) Defined conditions for the lifted person
e) Information on conforming of the sling to the hoist itself
f) Warning or caution to refer to the instruction for use of the lift
g) Precautions for use including washing and sterilization method
h) Warning to stop using in case of severe damage or wear, and contact address
i) Technical specifications (including the following matters)
1) Dimensions
2) Maximum load
3) Safety precautions

Annex A (informative)

Applications of hoists

Introduction

This Annex is to describe applications of hoists, and not to constitute the provisions of this Standard.

This Annex shows some examples of typical applications of this hoist. It represents the state of the art at the time of drafting.

For the following applications, the given guidance is based on the principals of avoiding undue stress of the attendant and the lifted person.

Examples of typical applications:

- Use in conjunction with a wheelchair
- Use in conjunction with a bathtub
- Use in conjunction with a bed
- Use in conjunction with a shower seat
- Use in conjunction with a toilet
- Lifting from the floor
- Use in conjunction with other technical aids

Annex JA (informative)

Comparison table between JIS and corresponding International Standard

JIS T 9241-5 : 2008 <i>Hoists for the transfer of persons with disabilities—Part 5: Sling sheets</i>					ISO 10535 : 1998 <i>Hoists for the transfer of disabled persons—Requirements and test methods</i>		
(I) Requirements in JIS		(II) International Standard number	(III) Requirements in International Standard		(IV) Classification and details of technical deviation between JIS and the International Standard by clause		(V) Justification for the technical deviation and future measures
Clause	Content		Clause	Content	Classification by clause	Details of technical deviation	
1 Scope	Specifies sling sheets used for the persons unable to easily transfer or move on their own.	ISO 10535	1	Specifies the general requirements of hoists and body-support units intended for the transfer of disabled persons.	Deletion	Divides one International Standard into parts 2 to 5.	Divides into parts 2 to 5 in consideration for convenience of users of the Standard. No substantial deviations.
2 Normative references							
3 Terms and definitions	Adds the terms relating to slings.		3	Definitions of terms	Addition	Describes the terms referred to in JIS.	No substantial deviations.
4 Classification and division							
4.1 Classification	Quotes JIS T 9241-1.		—		Addition	Specifies in detail according to intended purpose.	
4.2 Division (symbol for division) according to maximum load	Quotes JIS T 9241-1.		—	The maximum load of 120 kg or more	Addition	Adds in order to make Japanese physical size reflect.	For addition, proposal will be submitted to ISO in the future.

(I) Requirements in JIS		(II) International Standard number	(III) Requirements in International Standard		(IV) Classification and details of technical deviation between JIS and the International Standard by clause		(V) Justification for the technical deviation and future measures
Clause	Content		Clause	Content	Classification by clause	Details of technical deviation	
5.1 Design							
5.1.1 Risk analysis	Indirectly quotes the following standard by quoting JIS T 9241-1. JIS Z 8051 <i>Safety aspects—Guidelines for their inclusion in standards</i>		4.1.1	EN 1441 <i>Medical devices—Risk analysis</i> Specifies the procedures to investigate safety of medical devices by clarification of hazard and evaluation of risk.	Alteration	Adopts the well-known method in Japan from among risk analysis methods specified in EN 1441.	Specifies in consideration of convenience of users of the Standard. Review will be made when EN 1441 is recognized as International Standard.
5.1.2 Ergonomics factors	Indirectly specifies required items by quoting JIS T 9241-1.		4.1.2	Specifies EN 614-1 <i>Safety of machinery. Ergonomic design principles—Part 1: Terminology and general principles.</i>	Alteration	Specifies through translating the EN standard.	Specifies in consideration of convenience of users of the Standard. No substantial deviations.
5.2.1 Performance of sling	Specifies no damage and loss of function after tests. Adds colour fastness.		7.6	Specifies the function after tests.	Addition	Adds to performance evaluation after washing and drying test.	Adds the matters according to evaluation for textile product in Japan.
	Specifies the conformity to spreader bar in 8.1 “Marking”.		7.6	Specifies the conformity.	Deletion	Deletes because the conformity to spreader bar is described in 8.1 “Marking” on products.	

(I) Requirements in JIS		(II) International Standard number	(III) Requirements in International Standard		(IV) Classification and details of technical deviation between JIS and the International Standard by clause		(V) Justification for the technical deviation and future measures
Clause	Content		Clause	Content	Classification by clause	Details of technical deviation	
6 Test methods 6.1 General 6.1.1 Test condition	Specifies the test methods with referring to JIS L 0844.				Addition	Adopts the commonly used method in Japan from among general test methods.	
6.4 Flame retardancy	Specifies according to JIS L 1091.		7.7.1	Specifies according to EN 1021-1 <i>Evaluation for ignition quality.</i>	Alteration	No substantial deviations.	Quotes JIS corresponding to EN standard.
7 Inspection					Addition	Specifies in detail.	
8.1 b)	Division symbol according to the maximum load				Addition	Describes according to division by body weight.	No substantial deviations.
8.1 f)	The maximum load				Addition	Stipulates the range of physical size of users.	Proposal will be submitted to ISO.
			Appendix A		Deletion		No need for Part 5.
			Appendix C		Deletion		No need for Part 5.
			Appendix ZZ	International Standards and European Standards for information	Deletion		No need for Part 5.

Overall degree of correspondence between JIS and International Standard (ISO 10535 : 1998) : MOD

NOTE 1 Symbols in sub-columns of classification by clause in the above table indicate as follows:

- Deletion : Deletes specification item(s) or content(s) of International Standard.
- Addition : Adds the specification item(s) or content(s) which are not included in International Standard.
- Alteration : Alters the specification content(s) which are included in International Standard.

NOTE 2 Symbol in column of overall degree of correspondence between **JIS** and International Standard in the above table indicates as follows:

- MOD : Modifies International Standard.

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